

Ruler Rules! – Teacher Notes

This activity is for students who have not yet been shown how to read a ruler properly

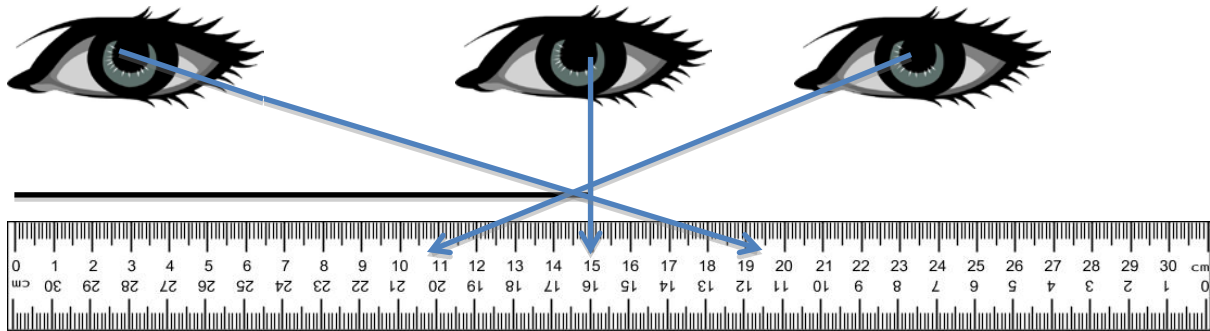
Materials

- 1 ruler
- One piece of string or paper



Avoiding parallax

Find an obvious vertical structure in the classroom such as a doorframe or window frame. Ask students to point their index finger of their right hand towards the ceiling. Students should close their left eye and use their right eye to line up the finger with the frame. Without moving their finger, students close their right eye and open their left. The raised finger will appear to jump to the right. This phenomenon (change) is known as parallax. It is the result of our eyes being apart since neither the finger nor the frame actually moved. For this reason reading any instrument is best done with the eyes directly overhead of the meter.

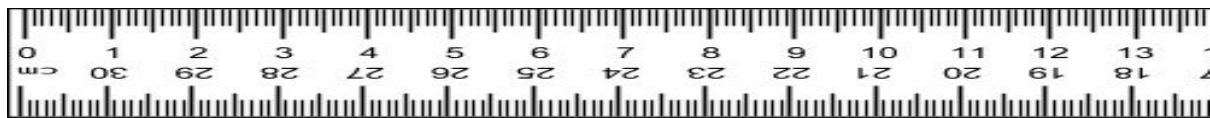


Which is the correct reading? **15cm**

Similarly when reading thermometers or levels of liquid in a container, the thermometer or cylinder is raised to eye level or the bead is brought down to liquid level. Students may notice that water often has a downward curved surface (or meniscus). Scientists agreed to measure from the lowest point of this curve. (More information can be found in the "Water" section of Year7 WASP).

Mismeasuring

Many students have been found to place the start of the ruler, not the start of readings on the ruler at the beginning of the object to be measured. Similarly old rulers that have been used for other purposes, such as building trebuchets may have the start of measurements worn away.



A student mistakenly used the whole length of this ruler to measure 30cm when they were cutting wood for a model. Would they have cut too much or too little? **Too much.**

What mistakes could happen if a student used a ruler where one end had been worn away? **If they did not compensate for the missing length their readings would be too long.**

Another student used a bent ruler to measure wood for the model. Would they have cut too much or too little? **Too little.**

Students may test this by using a 10cm piece of string. Laid straight it will measure 10cm. As it is curved more it will measure less.